



ABSTRACT OF THE DISCLOSURE

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A complex multiplier complex-multiplies a carrier modulation signal group for deciding the phases and amplitudes of a plurality of carriers which are orthogonal to each other on the frequency axis by a complex signal group having a predetermined specific pattern which varies in phase at random. An inverse Fourier transformer performs inverse Fourier transformation on an output of the complex multiplier, for transforming a digital signal which is multiplexed on the frequency axis to an OFDM signal on the time axis. A guard interval insertion part adds front and rear guard intervals to front and rear parts of each symbol of the OFDM signal respectively. The front and rear guard intervals include data which are identical to those of rear and front end parts of the corresponding symbol respectively. Arithmetic processing which is reverse to that on a transmission side is performed on a receiving side, whereby distortion of received data is removed. Thus, the OFDM signal can be transmitted with no waveform distortion on a data component of each symbol on the frequency axis after Fourier transformation even if a reflected wave is superposed on a direct wave due to a multipath.